

CLAIMS

1. A method for establishing a data link service connection for a bi-directional service to be provided between first and second nodes through a network, the method comprising:

responsive to a request to initiate the service connection at the first node, generating a local index at the first node indicative of the service to be provided;

sending a first signaling message containing the index from the first node and service parameters of both of the nodes via the network to the second node;

upon receiving the message at the second node, initiating the service connection at the second node responsive to the index and the service parameters, and sending a second signaling message via the network to the first node; and

upon receiving the second signaling message at the first node, activating the service indicated by the index.

2. A method according to claim 1, wherein the service parameters are indicative of a data link port on which the service is to be provided, and wherein activating the service comprises activating the service on the data link port indicated by the service parameters.

3. A method according to claim 2, wherein the service parameters are indicative of the data link port on the first node on which the service is to be provided.

4. A method according to claim 2, wherein the service parameters are indicative of the data link port on the second node on which the service is to be provided.

5. A method according to claim 2, wherein the service connection comprises an Ethernet connection, and wherein the index is further indicative of a Virtual LAN (VLAN) address to which the service is to be provided.

6. A method according to claim 1, wherein the service comprises a transparent LAN service (TLS), and wherein the index is indicative of a TLS instance on which the service is to be provided.

7. A method according to claim 1, wherein the service comprises a SONET service, and wherein the service parameters are indicative of a SONET path on which the service is to be provided.

8. A method according to claim 1, wherein the service parameters further contain a field identifying a service type of the requested service.

9. A method according to claim 1, wherein the service parameters are configured to form a part of a Management Information Base maintained at the nodes.

10. A method according to claim 1, wherein sending the first signaling message comprises sending a signaling packet in which the service parameters are encapsulated in an object that is ignored and passed on by packet-switching routers along a route of the packet, and is received and read only at the second node.

11. A method according to claim 10, wherein sending the signaling packet comprises sending a resource reservation packet in which the object has a class number that causes the routers to ignore it.

12. A method for establishing a data link service connection for a service to be provided between first and

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second nodes via a label-switched tunnel through a network, the method comprising:

responsive to a request to initiate the service connection at the first node, generating a local index at the first node indicative of the service to be provided;

sending a signaling packet from the first node via the network to the second node, with the index encapsulated in the signaling packet in an object that is ignored and passed on by label-switching routers along the label-switched tunnel, and is received and read only at the second node; and

initiating the service connection at the second node responsive to the index received in the signaling packet.

13. A method according to claim 12, wherein sending the signaling packet comprises sending a resource reservation packet in which the object has a class number that causes the label-switching routers to ignore it.

14. A communication network, comprising:

first and second access nodes; and

a plurality of intermediate nodes that are configured to operate as packet-switching routers so as to convey data packets between the first and second access nodes,

wherein the access nodes are configured so that responsive to a request to initiate a data link service connection at the first node for a bi-directional service to be provided between the first and second nodes, a local index is generated at the first node indicative of the service to be provided, and a first signaling message containing the index and service parameters of both of the nodes is sent from the first node via the

15. A network according to claim 14, wherein the service parameters are indicative of a data link port on which the service is to be provided, and wherein the service is activated on the data link port indicated by the service parameters.

17. A network according to claim 15, wherein the service parameters are indicative of the data link port on the second node on which the service is to be provided.

19. A network according to claim 14, wherein the service comprises a transparent LAN service (TLS), and wherein the service parameters are indicative of a TLS instance on which the service is to be provided.

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parameters are indicative of a SONET path on which the service is to be provided.

21. A network according to claim 14, wherein the service parameters further contain a field identifying a service type of the requested service.

22. A network according to claim 14, wherein the service parameters are configured to form a part of a Management Information Base maintained at the nodes.

23. A network according to claim 14, wherein the first signaling message comprises a signaling packet in which the service parameters are encapsulated in an object that is ignored and passed on by the intermediate nodes along a route of the packet, and is received and read only at the second node.

24. A network according to claim 23, wherein the signaling packet comprises a resource reservation packet in which the object has a class number that causes the label-switching routers to ignore it.

25. A communication network, comprising:

first and second access nodes; and

a plurality of intermediate nodes that are configured to operate as label-switched routers so as to provide a label-switched tunnel between the first and second access nodes,

wherein the access nodes are configured so that responsive to a request to initiate the service connection at the first node, a local index is generated at the first node indicative of the service to be provided, and a signaling packet is sent from the first node via the network to the second node, with the index

26. A network according to claim 25, wherein the signaling packet comprises a resource reservation packet in which the object has a class number that causes the label-switching routers to ignore it.

responsive to a request to initiate the service connection at the first node, generating a local index at the first node indicative of parameters of the service to be provided;

upon receiving the message at the second node, initiating the service connection at the second node responsive to the index, and sending a second signaling message via the network to the first node; and

28. A method according to claim 27, wherein the index is indicative of a data link port on which the service is to

be provided, and wherein activating the service comprises activating the service on the data link port indicated by the index.

29. A method according to claim 28, wherein the index is indicative of the data link port on the first node on which the service is to be provided.

30. A method according to claim 28, wherein the index is indicative of the data link port on the second node on which the service is to be provided.

31. A method according to claim 28, wherein the service connection comprises an Ethernet connection, and wherein the index is further indicative of a Virtual LAN (VLAN) address to which the service is to be provided.

32. A method according to claim 27, wherein the service comprises a transparent LAN service (TLS), and wherein the index is indicative of a TLS instance on which the service is to be provided.

33. A method according to claim 27, wherein the service comprises a SONET service, and wherein the index is indicative of a SONET path on which the service is to be provided.

34. A method according to claim 27, wherein the index further contains a field identifying a service type of the requested service.

35. A method according to claim 27, wherein the index is configured to form a part of a Management Information Base maintained at the nodes.

36. A method according to claim 27, wherein sending the first signaling message comprises sending a signaling

packet in which the index is encapsulated in an object that is ignored and passed on by label-switching routers along the tunnel, and is received and read only at the second node.

37. A method according to claim 36, wherein sending the signaling packet comprises sending a resource reservation packet in which the object has a class number that causes the label-switching routers to ignore it.

38. A communication network, comprising:

first and second access nodes; and

a plurality of intermediate nodes that are configured to operate as label-switched routers so as to provide first and second label-switched tunnels between the first and second access nodes,

wherein the access nodes are configured so that responsive to a request to initiate a data link service connection at the first node for a bidirectional service to be provided between the first and second nodes, a local index is generated at the first node indicative of parameters of the service to be provided, and a first signaling message containing the index is sent from the first node via the network to the second node, and so that upon receiving the first signaling message at the second node, the service connection is initiated at the second node responsive to the index, and a second signaling message is sent via the network to the first node, and so that upon receiving the second signaling message at the first node, the service indicated by the index is activated via the first and second label-switched tunnels.

39. A network according to claim 38, wherein the index is indicative of a data link port on which the service is to be provided, and wherein the service is activated on the data link port indicated by the index.

40. A network according to claim 39, wherein the index is indicative of the data link port on the first node on which the service is to be provided.

41. A network according to claim 39, wherein the index is indicative of the data link port on the second node on which the service is to be provided.

42. A network according to claim 39, wherein the service connection comprises an Ethernet connection, and wherein the index is further indicative of a Virtual LAN (VLAN) address to which the service is to be provided.

43. A network according to claim 38, wherein the service comprises a transparent LAN service (TLS), and wherein the index is indicative of a TLS instance on which the service is to be provided.

44. A network according to claim 38, wherein the service comprises a SONET service, and wherein the index is indicative of a SONET path on which the service is to be provided.

45. A network according to claim 38, wherein the index further contains a field identifying a service type of the requested service.

46. A network according to claim 38, wherein the index is configured to form a part of a Management Information Base maintained at the nodes.

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47. A network according to claim 38, wherein the first signaling message comprises a signaling packet in which the index is encapsulated in an object that is ignored and passed on by the label-switched routers along the tunnel, and is received and read only at the second node.

48. A network according to claim 47, wherein the signaling packet comprises a resource reservation packet in which the object has a class number that causes the label-switched routers to ignore it.

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